UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,461	03/07/2002	Masataka Ito	00862.022541	8794

5514 7590 05/22/2003

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER
ISAAC, STANETTA D

ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/091,461	ITO, MASATAKA
	Examiner	Art Unit
	Stanetta D. Isaac	2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 March 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Examiner view applicant's arguments as moot based on new grounds of rejection.

Drawings

2. Figure 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

DETAILED ACTION

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 10-15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyake et al. US Patent 6,468,884.

5. Miyake discloses the invention substantially as claimed. See **Figs. 1-10** where Miyake an annealing method of annealing an SOI substrate in a reducing atmosphere, comprising the step of:

6. holding the SOI substrate by a holding portion having a surface formed from silicon and annealing the SOI substrate, wherein the holding portion is a member having a silicon film thereon or a member formed from single-crystal silicon or polysilicon.

7. Pertaining to claim 2 according to claim 1, Miyake teaches wherein the annealing is executed at a temperature lower than the melting point of a single-crystal silicon.

8. Pertaining to claim 3, Miyake teaches the method according to claim 1, wherein the annealing is executed at a temperature not less than 775°C.

9. Pertaining to claim 4, Miyake teaches the method according to claim 1, wherein the annealing is executed at a temperature not less than 966°C.

10. Pertaining to claim 5, Miyake teaches the method according to claim 1, wherein the annealing is executed at a temperature not less than 993°C.

11. Pertaining to claim 6, Miyake teaches an SOI manufactured using an annealing method of any one of claim 1.

12. Pertaining to claim 8, Miyake teaches a semiconductor device manufacturing method, comprising the step of:

13. annealing an SOI substrate using an annealing method of any one of claim 1; and forming an active region for a transistor in a nonporous semiconductor layer of the SOI substrate.

14. Pertaining to claim 10, Miyake teaches an annealing method of annealing an SOI substrate in reducing atmosphere, comprising the step of:

15. holding the SOI substrate by a holding portion which contains no silicon carbide formed by sintering and has a surface formed from silicon carbide deposited by CVD and annealing the SOI substrate.

16. Pertaining to claim 11, Miyake teaches the method according to claim 10, wherein the annealing is executed at a temperature lower than a melting point of single-crystal silicon.

17. Pertaining to claim 12, Miyake teaches the method according to claim 10, wherein the annealing is executed at a temperature not less than 775°C.

18. Pertaining to claim 13, Miyake teaches the method according to claim 10, wherein the annealing is executed at a temperature not less than 966°C.

19. Pertaining to claim 14, Miyake teaches the method according to claim 10, wherein the annealing is executed at a temperature not less than 993°C.

20. Pertaining to claim 15, Miyake teaches an SOI manufactured using an annealing method of any one of claim 10.

21. Pertaining to claim 16, Miyake teaches a semiconductor device manufacturing method, comprising the step of:

22. annealing an SOI substrate using an annealing method of any one of claim 10; and forming an active region for a transistor in a nonporous semiconductor layer of the SOI substrate.

Claim Rejections - 35 USC § 103

23. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

24. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al. US Patent 6,468,884 in view of conventional prior art.

25. Pertaining to claims 7 and 16, Miyake fails the substrate according wherein an HF defect density is not more than 0.05 defects/cm^2.

26. Given the teachings of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. *See In re Aller, Lancey and Hall* (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation. Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 f.2d 1575,1578,16 USPQ2d 1934, 1934 (Fed. Cir. 1990).

27. Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

28. Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. *Ex parte Ishizaka*, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

29. An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 703-308-5871. The examiner can normally be reached on Monday-Friday 7:30am -5:30pm.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-3432 for After Final communications.

32. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Stanetta Isaac
Patent Examiner
May 18, 2003

John F. Niebling
Supervisory Patent Examiner
Technology Center 2800